Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of

Redesignation of the 17.7 GHz Frequency Band,	)
Blanket Licensing of Satellite Earth Stations in the	) IB No. 98-172
17.2-20.2 GHz and 27.5-30.0 GHz Bands, and the	)
Allocation of Additional Spectrum in the 17.3-17.8 GHz	) RM-9005
24.75-25.25 GHz Frequency Bands for Broadcast	)
Satellite Service Use	) Rm-9118

Reply to Opposition to Petition for Reconsideration

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July 23, 2003

IMCC believes that SIA is off the mark in numerous of its comments in its July 10, 2003 Opposition to the IMCC Petition for Reconsideration and Request for Emergency Relief, filed on May 8, 2003. Many of the SIA comments were offered in their previous filing in Opposition dated May 15, 2003. IMCC, on June 3, responded to and rebutted much of that filing. There seems little purpose in repeating those matters.

However, there are three categories of issues included in SIA's current filing that do need response. First, matters about which SIA is mistaken or only partially correct. Second, response to the analysis prepared by Radio Dynamics Corporation that was attached to and is the core of the SIA Opposition. Third, items about which SIA has a misimpression concerning the IMCC Petition, or misleads the reader.

Fundamental Mistakes by SIA

1. Claims of 1.1 GHz, 250% More PCO Spectrum

The premise of the argument made by SIA is based on the assumption that all or most of the 12 GHz, 18 GHz and 22 GHz frequencies, previously identified by the FCC as available to PCOs, are functionally available, useable and have equal economic value. Suggesting that the full 1.1 GHz is available, and concluding that PCOs enjoy the economic benefit of a 250% increase in bandwidth from the previous situation is both oversimplified and misleading. The new frequencies allocated are not equally usable by PCOs to the previous 18.142-18.54 GHz allocation. Realistically, PCOs do not enjoy anything like an increase of 250% in bandwidth, as suggested by the SIA. In fact, significantly less useable bandwidth is generally available to the PCO seeking a microwave application under the FCC rulings. In addition, PCOs are now burdened with a significant increase in ongoing operating and system expansion costs. The new frequencies

are more congested, as supported by our original submission and our review of the OET study and reconfirmed in the Comsearch letter, attached.

The 17.7+ frequency is used by numerous other entities, and is often assigned in 10 MHz blocks, versus the standard video blocking of 6 MHz. The probability of congestion and awarding of a license are also factors in assessing the availability of spectrum for a PCO. The actual levels of congestion decrease the functional spectrum available to a PCO in most markets. The net impact of the FCC decisions, given the practical availability of uncongested and licensable spectrum, has the net effect of reducing the total operational spectrum actually available for PCOs.

2. 12 GHz Has Limited Value For PCOs

The SIA argues that the 12 GHz band is suitable for PCOs and that migrating PCOs to this band is fully possible. In essence, on page 6, SIA repeats that this argument, advanced 5 years ago, still applies.

During the past 5 years hundreds, if not thousands, of 18 GHz links have been deployed, within the rules and in good faith relying on the existing FCC frequency allocation policies. This fact alone has a meaningful and substantial impact on the functional suitability and economics of continued PCO network growth for existing systems and for the operational migration of such systems.

12 GHz may be usable for PCOs as part of the overall potential spectrum assignment. However, as argued in our Petition, this frequency is primarily used by franchised cable companies in the same markets in which PCOs are attempting to compete and provides minimal potential utilization value for PCOs in many circumstances.

The economics of the 12 GHz band for existing 18 GHz system expansions, new systems additions, or even system migrations are not reasonably addressed in the simplified statements offered by the SIA.

3. Combinations Of Spectrum Are Far Less Useful Than Contiguous Spectrum

SIA argues that a combination of bands and non-contiguous spectrum should be fully acceptable and economically realistic for PCOs. In fact the opposite is true.

The cost of non-contiguous spectrum deployment, management and expansion is prohibitive. As an example, infrastructure costs nearly double for additional antennas, dual electronics and supporting passive components. Previously viable paths for customers under a single contiguous spectrum become very uneconomic. To consider only the amount of MHz made available, assuming such bandwidth is actually even available, without examining the cost of acquiring, equipping, managing and expanding customer links employing the bandwidth is unrealistic. The SIA failed to consider or present a reasonable economic explanation for its argument. Therefore, SIA overlooks the business realities of a competitive industry.

The IMCC notes that the satellite industry has strenuously argued that the operational feasibility and economic importance of Hughes being provided with 1 GHz of contiguous downlink spectrum is essential if Hughes' system is ever to make business sense. Such is also the case with PCO provision of microwave transmission.

4. Economics Of The Commission's Plan Do Not Work

Under the FCC plan, PCO's existing 18 GHz systems, deployed under reasonable economic and regulatory assumptions, will now become stranded and uneconomic, well before their value has been realized. As just one example, an 18 GHz transmitter site with a few existing receive sites can no longer be expanded with additional 18 GHz receive sites under the FCC rules. Rather, a new 17.7 GHz or 12 GHz system with required redundant equipment, never previously required or expected, must be deployed, assuming those frequencies are even available along the required path. The economics of these overlay microwave network costs, not being able to leverage past network investment, would typically render the new proposed customer link uneconomic.

In the past, this system expansion would have been initiated by the PCO to competitively serve a new customer by expanding an existing 18 GHz system with a single new path from an in-place transmitter. Because of the new FCC rules this is no longer possible. In addition, the relocation cost reimbursement contemplated by the FCC would not apply.

Expansion of existing 18 GHz systems should be allowed without restrictions, even if such additions increase the later cost of relocation. PCOs relied on previous FCC Orders in deploying microwave systems, and have the continued need to economically expand their systems to compete and serve customers. They should not be burdened with the premature stranding of otherwise valuable assets. PCOs should not have to bear significant incremental costs to deploy in alternate frequencies and the FCC relocation formula would not apply under these PCO expansion scenarios.

5. Fiber And Satellite As Viable Technology Substitutes

SIA argues that the "IMCC fails to explain why the more than 1.1 GHz of spectrum now available for PCO licensing, coupled with fiber optics networks and satellite distribution facilities are not sufficient to meet the needs of those PCOs". In general, PCOs take all steps to deploy the least costly, best performing network to meet the customer opportunities and contractual commitments within an attractive economic model. In many cases, microwave is the technology of choice in this multi-faceted balance. Increasing the cost of the required network would undermine the positive economic model or risk assessment, resulting in decreased competition with franchised cable companies.

The deployment of fiber or satellite services are always considered in any customer deployment, and done so in many cases. But alternative technologies should not be required where they are not economically realistic. These technologies may exist in theory but PCOs should not be burdened by the incremental cost of multiple revisions to spectrum allocation and consequent deployment requirements that entail more expensive technologies for any particular customer path.

The FCC ruling forces PCOs to incur higher network deployment costs, abandon existing customers or avoid potential customers because of those increased costs.

Responses to the Radio Dynamics (RDC) Analysis

Attached is a response prepared by Comsearch to the Radio Dynamics analysis that was attached to the SIA filing. The Comsearch letter speaks to numerous technical matters that reinforce the Comsearch letters attached to the IMCC Petition of May 8, 2003. Relevant comments include the following:

1. Much of what RDC and SIA assert is based on analysis of spectrum use by PCOs that simply does not represent the current PCO model for microwave transmission. Even if the means of spectrum use could be done as SIA/RDC assert, using split spectrum or hybrid links from 3 bands and buying and coordinating multiple types of equipment, this would alter the economics of PCO use of microwave transmission so drastically that it would no longer be financially viable.

2. SIA, on page11, accurately states that IMCC/Comsearch selected 10 links for study and included that in the IMCC filing of May 8, 2003. SIA suggests that the links may have been selected because they are the "…worst possible interference cases". The links selected were based on hub operations in major urban markets, where the preponderance of PCO systems reside. While the link selection was not entirely random neither was it done to artificially inflate the incidence of predicted interference. If IMCC had the financial resources we would have liked to study all 1400 links and we think the results would have been comparable.

3. We can argue all day long about the relative validity of the Comsearch research versus the RDC research. We agree that the key is not which company did a more valid analysis of 10 PCO links, admittedly a small sample. We think the key is whether the OET study is based on valid research criteria. Comsearch identified several problems with the FCC-OET study methodology as stated in the letter of March 20, 2003. The RDC and Comsearch studies agree that a large percentage of links (30% in the case of the RDC study) do not have a contiguous 280 MHz segment available for coordination. This percentage, at odds with the FCC's results, confirms that finding contiguous spectrum was not a goal of the OET study. RDC states that "…the Comsearch analysis does not follow the industry standard procedures as given is TIA-TSB 10F." As discussed in their July 22, 2003 letter, attached, Comsearch continues to believe that their analysis

does follow TIA-TSB 10F and that the difference in interference objectives between the RDC and Comsearch studies has only a minor impact on the results.

4. SIA must think the OET study is without flaw and is perfectly accurate because their Opposition includes not one statement challenging the OET procedure and conclusions. Nor does RDC address any point of disagreement with the OET procedure or conclusions.

5. As we read the RDC and the Comsearch work, both studies show similar results if the same operational requirements are considered. First, required 280 MHz of contiguous spectrum. Second, the same polarization. Third, consideration of transmitters in close proximity to co-channel receivers. In both studies it was shown that at least 3 out of the 10 links did not have access to 280 MHz of contiguous spectrum. Comsearch identified several additional links as having potential problems due to close in transmit to receive conflicts while RDC chose to completely ignore them. Neither number is acceptable if the FCC wants PCOs to continue their competition with franchised cable. RDC points out several methods of resolving conflicts including the use of cross polarization and non-contiguous spectrum. While valid technically, RDC'S suggested ways of addressing these difficulties are, by and large, not realistic for PCOs. For instance, the polarization issue is a technical problem that could be addressed, but it would require a financial burden certainly not realistic for PCOs to assume, and we think unacceptable to Hughes as one item in relocation costs.

6. RDC, on the one hand, ignores the high-low conflict issue, but on the other hand recommends using the 12 GHz space to resolve these conflicts. It is a significant issue for PCOs that do need contiguous spectrum in order to operate efficiently and economically by providing enough channels at competitive cost.

7. As to 21.2-23.6, SIA/RDC tell us nothing new, but it should not be ignored that the space is not channelized for 6 MHz segments, is not contiguous with other

usable spectrum and would require new and duplicative equipment. Another example or probable relocation costs Hughes may not want to assume to meet the "comparable facilities" test.

8. The core issue for PCOs is that of contiguous spectrum and the financial reality of providing service without that. Financial reality is the same factor for Hughes that leads to SIA's filing. This is also addressed in the first portion of the current IMCC filing, as well as in our filing of May 8, 2003.

Items About Which SIA Has Misimpressions

1. SIA states on page 3, footnote 7, that "IMCC is simply wrong when it asserts the GSO FSS licensees argued in the proceeding for access to 1000 MHz of contiguous GSO FSS downlink spectrum." During the past debate on this matter, this issue became a core of the disagreement among Hughes and its peers and IMCC. If Hughes is willing to accept less than 1000 MHz of contiguous downlink spectrum it is significant. If Hughes agrees to less spectrum or non-contiguous spectrum it is meaningful because we are not aware of any other company that intends to launch such a system.

2. SIA states that the FCC would never reconsider an Order simply to debate matters on which the FCC has already deliberated and spoken and therefore, the IMCC Petition should not be allowed. But the present dispute arises from a Hughes Petition for Reconsideration to a previous FCC Order issued in October of 2001, that upheld the 1991 FCC Order giving PCOs use of the 18.3-18.58 GHz band. In any event, the Commission routinely entertains and considers Petitions for Reconsideration that ask for a second look at legal conclusions or points of fact that were not fully addressed. Had it not been for the July, 2003 Hughes/SIA

Petition for Reconsideration we would not need to make this filing. How is the IMCC Petition different than Hughes filing for Reconsideration in October of 2000, after the FCC, in 1999, had already considered and decided to allow PCOs to continue to use the 18.3-18.58 spectrum? .

3. SIA seems to have made a mistake, probably without intent, when it misquoted the IMCC Petition. On page 5 of the SIA filing, it says that the FCC "declined" to adopt the IMCC point-of-view. The IMCC Petition says exactly what the FCC did when it addressed and "decided" to support the IMCC view.

4. On page 8 of the SIA Opposition, it is asserted that "…analog equipment (which is now outmoded)…" Franchised cable companies, large and small, as well as PCOs, utililze analog technology for the transmission of many, if not a majority, of the channels provided. Robust analog service, the primary means of transmission for many PCOs, is still quite viable in both the number of channels transmitted and the cost of doing so in a way to compete with franchised cable.

5. SIA repeatedly asserts that PCOs should utilize the spectrum between 21.2-23.6 GHz. If this spectrum was not already crowded, if it were channelized for 6 MHz channels, if it did not allow for only shorter link lengths than in the 18 GHz space, if provision of channels in that space could be done economically and if that utilization did not require duplicative equipment, that is not presently manufactured, PCOs would do so. It also should be noted that this spectrum is also used by numerous parts of the federal government.

6. SIA, on page 6 of its Opposition, says that IMCC has not explained its views about the 12 GHz band. Had SIA read IMCC's previous filings, including the June 3, 2003 filing, it would be aware of our repeatedly stated view that use of that spectrum was only petitioned for by PCOs and IMCC as a supplement to and not a replacement for the spectrum already allocated for PCO use. We knew then and

repeat now that we read FCC's adoption of the 12 GHz Order as consistent with our view, that the 12 GHz space is problematic.

7. SIA, on page 9, also misstates the FCC intention and conclusions in the 12 GHz proceeding. The FCC did not say, as SIA asserts, that 12 GHz would be preferable for PCO use than the 18 GHz band because it would provide superior spectrum. The Commission said they were granting PCO use of that spectrum as a matter of equity so PCOs had a better chance of competing with franchised cable. To the extent that could be done, given the already existing congestion in that spectrum, it would be beneficial for PCOs because 12 GHz does allow for greater length links, which is something IMCC acknowledged from the outset.

8. IMCC does not agree with SIA, as they assert on page 10, that the OET analysis says that only ten (10) out of 1473 PCO links could not be accommodated in the 12.7-13.2 MHz space.

9. IMCC is pleased that SIA agrees, on page 13 of its filing, with the IMCC assertion that, "…IMCC does specifically demonstrate why the Commission's relocation rules do not address IMCC's concerns."

10. SIA is critical of the Comsearch analysis attached to the IMCC Petition. SIA apparently conducted insufficient analysis of the OET study or it found that study to be absolutely accurate with no flaws or miscalculations worthy of mentioning.

Conclusion

IMCC is of the view that multiple spectrum reallocations are negative for PCOs and their customers. Competition with franchised cable companies requires the continued availability of contiguous spectrum, not a hodgepodge of hybrid links in three different bands. We also think that the Comsearch analysis accurately challenges the validity of the OET study and helps make clear why

none of the three bands, individually or collectively, adequately replaces the contiguous space previously utilized by PCOs. For these reasons, we repeat the requests of the IMCC Petition of May 8, 2003.

Respectfully submitted,

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Attachments: Comsearch letter of July 22, 2003
Certificate of Service to Satellite Industry Association

July 23, 2003

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July 22, 2003

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BY EMAIL

RE: Review of Radio Dynamics Corporation's "Further Analysis of Relocation Possibilities for Multi-channel Video Systems from the 18.3-18.58 GHz band" Dated July 9, 2003

Dear Mr. Burhop:

We have reviewed the study "Further Analysis of Relocation Possibilities for Multi-channel Video Systems from the 18.3-18.58 GHz band" by Radio Dynamics Corporation (RDC) dated July 9, 2003. RDC concludes that our study described in our February 5, 2003 and May 5, 2003 letters to you "does not follow the industry standard procedures for interference calculations as given in TIA-TSB 10F." While this broad statement could lead the reader to believe that there is disagreement over the calculation of the interference levels in our study, the fact is that RDC's only disagreement under TSB 10-F concerns the objectives to which these calculated interference levels should be compared. Further, the disagreement only applies to the objectives used for the cases into AML system receivers such as those used by IMCC's constituents. As our study stated, "into the environment receivers, potentially affected by interference from the AML transmitters, interference criteria appropriate to the particular receiver were applied." Based on the predominance of digital transmitters in the 17.7-

18.14 GHz band, such appropriate criteria were almost exclusively the T/I criteria of TSB 10F Annex B.

The approach we took in establishing our interference level objective of –107 dBm (6 dB below the thermal noise power in the 6 MHz channel bandwidth) into the AML receivers is consistent with Annex B of TSB 10F. Annex B discusses the interference objectives for digital receivers, and Figure B-4 illustrates the relationship between thermal noise and allowable interference for 1 dB of threshold degradation.
For today's AML systems, each 6 MHz channel slot may be occupied by either an analog or a digital signal. Whatever channel arrangement occurs in the cable television baseband is duplicated in the transmitted microwave signal. TIA TSB 10-F was published in 1994, prior to the advent of digital cable, and therefore Annex D, concerned with AML systems, only considers analog AM-VSB video traffic. In the case of digital cable traffic, however, the Annex B approach is more appropriate than the C/I objective approach derived in Annex D and advocated by RDC.

Following Annex D would in many cases have resulted in slightly more stringent objectives than used in our study, and therefore in the prediction of more interference. However, we are satisfied that in the environment of the 17.7-18.14 GHz band which is comprised almost exclusively of digital interfering signals, limiting interference to 6 dB below the thermal noise power would adequately protect the AML paths even for analog channels. In summary, while there is minor disagreement on the interference objectives based on different approaches to employing TIA TSB 10F, the difference has little impact on the results of the study.

Our study identified cases of transmitters being located near co-channel receivers as difficult to coordinate and recommended avoiding such configurations. While criticizing our study for considering these cases, RDC seems at the same time to agree with our assessment, acknowledging that "coordinating such links can be difficult" and "it might be preferable to use the 12.7-13.25 GHz band to avoid violating the existing high-low frequency plan in the area" of Shaw Butte, AZ. It may be possible to operate transmitters near co-channel receivers in some cases; however, we strongly disagree with RDC's and the FCC's blanket dismissal of these cases as though harmful interference would not occur or could be mitigated in every case. For example with respect to the FCC's reliance on "shielding" to resolve such cases, I am not aware of any instance where artificial shielding

has been added to a commercial 18 GHz microwave site to mitigate interference.

Should you have any questions or require additional information please call me at (703) 726-5681.

Sincerely,

William W. Perkins
Principal Engineer
Spectrum Management Solutions

Certificate of Service

I hereby certify on this 23rd day of July, 2003 that a true and correct copy of the foregoing Reply to Opposition to Petition for Reconsideration as filed by IMCC was deposited in the U.S. mail, first-class postage paid, addressed to the following:

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President
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William J. Burhop